LYMAN (C. B.)

Simplicity in the Treatment of Fractures.

BY

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SIMPLICITY
IN THE TREATMENT OF FRACTURES.*

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It is with hesitancy that I presume to occupy your time and attention by the discussion of a subject which may seem so commonplace in these days, when the surgeon's pen is expected to bring forth something decidedly startling or the report of some new and heretofore unheard-of disease or operation. I trust that you will be kindly indulgent with me for a few moments while I express my views upon the subject of simplicity in the treatment of fractures.

That there is need of attention to simplicity I am convinced by a casual perusal of any of the ordinary text-books on fractures which are placed before the student and practitioner, replete, even at this enlightened age, with descriptions of complicated appliances for the treatment of the various fractures to which our frames are subject.

* Read before the Colorado State Medical Society, June 21, 1894.

These are the days when the surgeon desires glory and immortalization through the discovery of some new operation or of some new means whereby he may successfully and brilliantly do some of the older operations; to be the first or second to do some delicate operation, in which the wavering of a hair's breadth in the knife or the entrance of a single micro-organism to the seat of operation might overthrow his cherished plans and the victim be thereby sacrificed upon the altar of scientific investigation—an inch-and-a-half incision and a ten-minute operation.

Others are perhaps endeavoring to devise instruments of original design to do a certain operation which, perhaps, has been done a hundred times and as well with a common scalpel and a pair of scissors. How many of this kind can you enumerate that have been discarded as being too complicated to be practical; how many have been lost to sight and memory that bear the names of eminent men and teachers! Do not set me down, please, as a fanatic, or as one who in the least depreciates the efforts at advancement, for this is an age of progress, and those of us who desire to be anything must be up to the spirit of the times.

Labor-saving devices have revolutionized the mechanical world, but the surgical art is one where the human hand is and ever will be the active agent. Labor-saving devices in our line are not among the probabilities; we are like the artist who with pencil and brush can bring out on the canvas that which will win the admiration of the whole world. The true mechanic is the one who can accomplish the most and the best results, if required to do so, with the smallest number of tools; so is it with the surgeon.

The treatment of fractures is a subject to which often too little attention is devoted; it is a branch of surgery where the surgeon's results must ever remain as a monument or reproach to his skill, a living accusation of igno-

rance which almost amounts to crime. The grave seldom yawns to mercifully cover up his mistakes. Surgical shock does not often step in to cover up a crooked leg or an ankylosed elbow; rebellious micro-organisms are never responsible for a deformed hip. For whatever mistakes there are the surgeon himself is responsible. With that thought in mind, should we not devote more time to this subject, even though it does seem trivial and a reminder of our student days?

The surgeon who would successfully treat fractures should be a mechanic as well as a surgeon, and a man of excellent judgment: a mechanic that he may, if need be, make a splint with a jackknife and a shingle, and a man of good judgment that he may know just what is needed for each particular case, that he may do neither too little nor too much in the way of treatment; for I believe that some cases turn out badly from too much treatment, just as some do from not having enough. Of all surgical procedures the treatment of fractures, to my mind at least, demands simplicity of apparatus; the unfortunate individual who is your patient will bless you if you can treat him without much complicated paraphernalia. It seemed to be the fashion formerly for every surgeon to devise a splint with some little peculiarity that he might have his name handed down to posterity. How many of them are in use to-day? More than good judgment will sanction; and how many of them, I would ask, will accomplish the objects which are expected of them? A young surgeon who has never had much experience in handling these cases must, of course, be guided by the teachings of others and by his readings; and in his teachings too often he has been told that Sir B——'s or Dr. J——'s splint should always be used in the treatment of a Colles's fracture, and so on *ad infinitum*. Every surgical instrument dealer will

display to you his stock of patent splints, beautifully molded on a dummy, highly polished, perforated, grooved here and there to protect projecting bones from pressure, elevations here and there to press in between parallel bones —all of which to the novice looks plausible, and he says to himself: "I have found just the splint that I want for my case, and how fortunate I am!" As for myself, I abhor ready-made splints; they are like hand-me-down clothes; they seldom fit anybody except the dummy they were made on; very few of them are worth the cost of the material used in their construction. I well remember visiting an old surgeon's office when a boy and looking with eyes wide open, through glass doors, at his beautiful collection of splints, and I thought that he must surely be a very great surgeon; those same beautiful splints at a later day became mine and were forthwith consigned to the wood pile, with the exception of a few which I retained to show the members of my class that I might impress upon their minds their worthlessness.

It has been my lot to be called upon to treat almost every variety of fracture to which the human frame is subject, and with the armamentarium which you see before you I feel that I am fully prepared to handle any fracture that may come along, barring, of course, those which require operative treatment. This kit of tools is simplicity itself, very unlike the set which I saw in the old-time doctor's office. But to return to the kit, as I say, I have everything here which I desire, and I have purchased them at a cost of a trifle over four dollars. I feel, too, that I can handle my cases with less trouble, get better results, and give my patients better satisfaction than with the old-fashioned cumbersome or the new fashioned more elegant and complicated apparatus.

The important thing to bear in mind is that no two

cases are exactly alike; that an apparatus eminently fitted for one case may not do at all for the next; therefore the surgeon should be a mechanic, and be able to construct his own apparatus for each particular case, and not necessarily treat all in a set way because Professor So-and so did. What shoemaker would make all of our shoes over the same last? The surgeon should be a splint maker as well as a splint fitter.

We should always bear in mind the three cardinal points which govern the treatment of all fractures:

1. Make an accurate diagnosis, if you can do so without doing damage to the parts already injured.

2. Restore the fragments to their normal position.

3. Apply such an apparatus as will keep them there and immobilize them.

How much more satisfactory would be our results if we would always keep these three points before us! There are also three things which I would impress upon your minds by my remarks, and they are these:

1. That the treatment of fractures is not as difficult a proposition as it sometimes seems.

2. That you should not treat fractures by any set rule other than the rule which says that you must keep the fragments in their natural position and thoroughly immobilize them.

3. That simplicity in apparatus will give you better results with the least amount of trouble.

1. Most surgeons upon their advent into the arena of actual practice are possessed with the erroneous idea that fractures are very difficult things to treat. I have seen surgeons make as much preparation for fixing up a simple fracture of the lower leg as some would do for their laparotomy. That sort of thing undoubtedly inspires the ignorant with awe and respect and enables the surgeon to

charge large fees for his services, and might possibly serve as an advertisement for him, but such base methods should be beneath the dignity of him who relies upon his skill for his success. Confidence is what is needed, and that, of course, comes only with experience. In this enlightened age of ours the treatment even of compound fractures is not such a difficult thing with the proper understanding of aseptic methods, for we should be able to convert a large proportion of our compound fractures into simple fractures and treat them as such.

2. We should have no set rule for treating our fractures. We should make the rule fit the case and not the case the rule. I have seen surgeons work conscientiously for a considerable time to make a certain splint fit a case of Colles's fracture when the fact was that it was not the splint at all for that case; the surgeon did not fully understand the anatomy of the parts, but felt that he must make that case fit this particular splint. I have also seen a surgeon apply a roller plaster-of-Paris bandage to a fractured leg, take it off, and reapply it in his earnest endeavor to make it fit when it would not do so, and when another kind of dressing would have served the purpose perfectly; but he was not enough of a mechanic to see it. The surgeon should study each case of fracture, its nature, the direction of the line, and the direction of the displacement, before saying what kind of an apparatus should be put on. He should study to put on an apparatus which will be light and of sufficient strength (and right here let me say that the tendency is to put too heavy splints on fractures), and which should be as comfortable to the patient as possible. Splints which fit the parts accurately are the most comfortable, and therefore splints which can be molded to the parts are the most serviceable. Heavy wooden or metallic splints are not needed. When I use wooden splints I do not have

them over an eighth of an inch thick, and metallic splints I seldom use. To my way of thinking, splints which can be molded are the most serviceable, and I carry two materials which can serve that purpose—one, binder's board in strips, which, when soaked in water, become perfectly pliable, and can be molded to almost any surface; and the other is plaster of Paris, which, when made into a thick paste and incorporated into several layers of bleached butter cloth and folded into proper shape, makes a splint which can be made to fit any surface of the body, and when it becomes hard it will accurately support the parts and keep them perfectly immobilized. It is light, clean, and of good appearance. I have used this splint in almost every case of fracture of the leg below the knee and of the arm in the last three years, and I give it my unqualified approval. These splints can be made to fit any angle, as, for instance, at the elbow, and can be carried up over the shoulder in the form of a shoulder-cap in cases of fracture about that joint. They are to be held in place by means of an ordinary roller bandage, and in that way the seat of fracture can always be inspected without any difficulty.

3. I have already transgressed a little on this division of my subject—namely, that the simpler the apparatus is which will accomplish the results, the better will be the ultimate outcome of the case—when I spoke of the use of plaster-of Paris splints. I have already said that the surgeon's paraphernalia for the treatment of fractures need not be expensive or extensive. You may now ask, What have you in your kit? Well, here is the list:

Two yards of bleached butter cloth; one dozen safety pins; two strips of wood four inches wide, a quarter of an inch thick, and thirty inches long; one roll of adhesive plaster three inches wide; two strips of binder's board; two yards of unbleached muslin; four ounces of dental

composition; one foot of silver wire; one dozen plaster-of-Paris bandages; three pounds of dental plaster of Paris; four sheets of cotton wadding; half a dozen assorted bandages; one long patella splint; two empty sand bags; one pulley and cord—which, together with a pocket knife, will enable you to handle any case that may come along, excluding those which will require operative interference. You will notice that in this list there is no Dr. J——'s splint for Colles's fracture or Dr. S——'s splint for Pott's fracture; they are a superfluity, and would add nothing to your convenience or comfort. It is a mistake that our text-books are filled with descriptions of such a large number of complicated contrivances; the reader is at a loss to know which is the best, or may conclude that it is simply a matter of taste.

It is not my intention to detain you while I give you a detailed description of the methods of treatment of all of the fractures of the body, but I would like to mention a few to illustrate what I have been saying and to impress upon your minds the truth of my statements:

(*a*) Fracture of the clavicle—one of the common every-day cases: For the treatment of these cases what is more simple than a piece of unbleached muslin eight inches wide and eight feet long, and, when properly applied as a figure-of-eight bandage of the elbow, what can be more effective or more comfortable to the patient? I have treated ten cases of this injury by this method, and have had better results than when treating them by other methods. You can probably all recall and are familiar with at least a dozen different methods of treatment for this particular injury, and in many of them it would seem that the sole object was to make them as complicated as possible. I well remember a case which came to me from another town with an apparatus on which probably cost the doctor at least

fifteen dollars, and which consisted of a bellyband of leather with a pocket on one side into which fitted an upright steel rod, adjustable in length by means of a screw arrangement; at the upper end was a crutch which fitted into the axilla. The only thing which this apparatus could accomplish was to elevate the shoulder, and this could have been done just as effectively and much more easily by means of a piece of unbleached muslin costing only two cents, and which would have at the same time accomplished all of the other things desired—namely, to draw the shoulder backward and outward.

(*b*) Fracture of the phalanges: You will find in the market a number of patent splints for the treatment of this fracture. All that is necessary in these cases is to keep the fragments in line both in an antero-posterior position as well as in a lateral, and not to allow the finger to become rotated on its axis. A small, narrow piece of binder's board or a plaster-of Paris splint is all that is needed, and sometimes even this is not necessary, for simply bandaging the injured finger to those on either side will serve the purpose. In other cases you can take the finger of an old glove, draw it over the injured finger, and stiffen it with glue or varnish painted on the outside.

(*c*) Colles's fracture: Here is a place where we have an infinite variety of splints. In looking over one of the modern text-books I find no less than twelve different splints pictured for the treatment of this fracture, many of them, too, bearing such distinguished names as Nélaton, Bond, Smith, Hewitt, Dupuytren, Levis, Hamilton, and Bolles, and it is my experience after treating a large number of these cases that none of them accomplish the objects desired better than two straight pieces of board properly padded, or two plaster-of-Paris splints, neither of which will cost over five cents.

(*d*) Suppose now that we have a fracture in or near the elbow joint and it is necessary to put the arm up in an angular position, why should the surgeon carry around with him a large supply of angular splints of assorted sizes when with a yard of butter cloth and a pound of plaster of Paris he can make an angular splint which will fit any case and which will perfectly immobilize the joint and be more comfortable than any of the ready-made splints? This method I have used in a number of cases of all ages with entire satisfaction to all concerned.

(*e*) Fracture of both bones of the lower leg is one which is very common and apt to be compound. These cases can be simply and very satisfactorily treated by means of the plaster of Paris splint; some surgeons recommend putting on a temporary dressing for a few days and then incasing the leg in a roller plaster-of-Paris bandage. If that is your method of treatment I would certainly apply the temporary dressing first. It has been my habit to combine the temporary and permanent dressings in one, both in my treatment of simple and compound fractures of the leg, in the shape of a plaster-of-Paris splint long enough to reach from the knee down the leg, underneath the foot, and up on the opposite side of the leg to the knee again, which is to be held in place by means of an ordinary roller bandage. This can be applied to the leg at any time irrespective of the presence or absence of swelling, for as the swelling subsides the outside roller bandage can be slit up and a new one put on tighter than the first without disturbing either the splint or the fragments. It fits every irregularity of the surface; keeps the fragments perfectly immobilized; it does not allow of any motion in the ankle joint and will thereby prevent much ankylosis of that joint; the seat of fracture can be inspected at any time by simply slitting up a few turns of the roller band-

age at that point; it is very light, sufficiently strong, decidedly comfortable, and sufficiently cheap for any one. I have used this dressing in upward of forty cases, both simple and compound, and it has always given me perfect satisfaction. If the fracture be near the knee joint this splint can very easily be carried above that joint and thus immobilize it as well as the ankle joint. In compound fractures, after having properly taken care of the wounds, this splint can be applied directly over the dressings, and if it becomes necessary to change the dressings it can be done without disturbing the fragments at all; and how much more simple and comfortable is this than the old-fashioned fracture box, side splints, suspension or extension apparatus!

(*f*) In fracture of the neck of the femur in old persons, what is more simple than a plaster-of-Paris bandage made to include the pelvis and extending down to below the knee? How much more comfortable is it than the old-fashioned and barbarous apparatus of Desault or Neill!

(*g*) Fracture of the lower jaw: It has fallen to my lot to treat a number of cases of this kind where the fracture has been either in the body or the ramus. I remember one case which came to me after eight weeks with non-union and necrosis of the edges of the fragments, in which I removed the necrosed portions and secured the fragments by means of an iron wire passed around the teeth on either side of the line of fracture, getting a further purchase on the fragments by passing a fine wire around the other larger one over the seat of fracture, thus making the larger wire on the inside approximate the teeth—taking up the slack, as it were. The patient never wore any other apparatus than this, and in six weeks was discharged well. Another case of compound fracture of the lower maxilla I have recently handled in this same way, and the patient was

discharged in five weeks. If more than this is needed I make a mold of dental composition and place it on the outside of the jaw and secure it by proper bandages. If we can get along without complicated appliances here we are certainly doing our patients a favor.

I will not detain you longer by referring to any more fractures, and will thank you for your attention to this paper, which may have seemed to some of you rather elementary; but I am a firm believer in the virtue of simplicity in all surgical procedures, and if I have impressed upon any mind here the necessity and value of simplicity in the dressing for fractures, and the fact that with a proper anatomical knowledge and a proper amount of mechanical skill the treatment of fractures is not the difficult task that many would have us believe, I shall feel that my paper has been of some service.

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FRANK P. FOSTER, M.D.

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